

STATEMENT OF WORK

Requisition #: 281565

Title: Tank Farm Gas and Vapor Sampling System

Revision Number: 0

Date: 8/24/2015

Prior SOW or Revision Date: N/A

1.0 Objective

The objective of this statement of work is to procure a gas and vapor space sampling system which will be used in the primary tank headspace of Hanford single-shell tanks (SSTs), double-shell tanks (DSTs) and other connected enclosed spaces using a pre-existing sampling head.

2.0 Background/Introduction

The Tank Operations Contractor (TOC) is responsible for managing nearly 56-million gallons of radioactive waste stored in 149 SSTs and 28 DSTs at the U.S. Department of Energy's (DOE) Hanford Site in southeastern Washington State. The DOE has identified a need to sample vapor spaces in waste tanks and connected enclosed spaces that store radioactive waste on the Hanford site. It is currently expected that the number of required vapor space sampling events and their frequency will increase significantly in the immediate future. Current sampling equipment has been shown to be lacking in capability and reliability which has resulted in a task to procure a purpose built vapor sampling system.

3.0 Scope

In accordance with the supplied system specification and requirements document provided by WRPS, the Subcontractor is responsible for the development, design, fabrication, assembly, and testing of the head space sampling system resulting from this scope of work.

3.1 Design

As much as possible the components used to make up the head space sampling system should be commercially available off the shelf. Design should therefore consist mainly of integrating existing components and systems to make up the vapor space sampling system. Proof of concept testing shall be performed by the Subcontractor to drive a mature final system design. All design media shall be submitted to WRPS for review and approval. The Subcontractor must receive approval of design media before final procurement of production components/material, and/or fabrication begins.

3.2 Fabrication

Fabrication activities shall only be performed if prior approval of the appropriate design media/documentation has been given to the Subcontractor by WRPS.

3.3 Testing

The Subcontractor is required to perform a factory acceptance test (FAT) of the gas and vapor sampling system in accordance with the included specification RPP-SPEC-60471. The FAT shall be written by the Subcontractor and shall include necessary steps and waypoints to demonstrate the system meets the specified functional requirements as defined by the supplied specification.

The FAT shall be submitted to WRPS for review. The Subcontractor shall not perform the FAT

until WRPS has given approval of the FAT procedure. The Subcontractor shall inform WRPS at least two weeks in advance prior to performance of the FAT and shall only perform the FAT with designated WRPS witnesses. The Subcontractor shall compile a FAT report following successful completion of the FAT and submit it to WRPS for approval. The FAT report must be reviewed and approved by WRPS prior to shipment and final acceptance at the Hanford Site.

4.0 Submittals

In support of the work scope established in Section 3.0 above and the included specification RPP-SPEC-60471, submittals are listed on the Master Submittal Register (MSR).

Submittals shall be provided using the TOC Incoming Letter of Transmittal (form A-6005-315). All transmittal subject headings shall contain, at a minimum, the subcontract number, submittal number, and submittal description.

Submittals shall be provided in electronic format unless available only as a hard copy. Electronic submittals may be sent to TOCVND@rl.gov or delivered via a WRPS designated File Transfer Protocol (FTP) site. Electronic formats must be non-password protected in one of the following formats:

- Microsoft® Office Compatible
- Portable Document Format (PDF)
- Tagged Image File Format (TIFF)
- Graphics Interchange Format (GIF)
- Joint Photographic Experts Group (JPEG)
- Windows Media Video (WMV)
- Moving Picture Expert Group (MPEG)
- Extensible Markup Language (XML)
- HyperText Markup Language (HTML)
- Comma Separated Values (CSV)
- Text (TXT)
- Drawings (PDF) & (DWG)

5.0 Acceptance Criteria

Unless otherwise approved by the TOC, all electrical control panels and electrical equipment [a general term including material, fittings, devices, appliances, luminaries (fixtures), apparatus, and the like, used as a part of, or in connection with, an electrical installation] delivered or brought onto the site in performance of this subcontract must be listed or labeled by an organization currently recognized by the Occupational Safety and Health Administration (OSHA) as a nationally recognized testing laboratory (NRTL).

1. For any system or completed assembly containing electrical systems, the Subcontractor shall provide evidence of NRTL listing along with labeling. If a category for the assembly does not exist, e.g. custom-made equipment, the Subcontractor shall provide information necessary for WRPS evaluation based on compliance with the provisions of the National Electric Code (NEC) containing the following information:
 - A. Provide a complete list of components/parts used in the fabrication of the assembly along with the Underwriters Laboratories (UL) file number associated with each part number.
 - B. Provide a summary of conditions of acceptability for any "Recognized" components used in the fabrication of the assembly.
 - C. For any unevaluated component, provide descriptive literature to verify the use of the unevaluated component, including product specification and a description of its intended application.
2. For any system or completed assembly containing electrical systems, the Subcontractor shall provide evidence of NRTL listing along with labeling. If a category for the assembly does not exist, e.g. custom-made equipment, the Subcontractor shall perform an independent NEC

inspection providing an NEC Inspection Report upon delivery. WRPS will then approve by inspection before equipment is released for field use by completing the Non-NRTL Labeled Electrical Equipment AHJ Approval Form (A-6005-705).

Custom-made Industrial Control Panel assemblies must comply with the provisions of UL508A. Include the following applicable requirements for custom-made assemblies:

For Industrial Control Panels, the Subcontractor shall fabricate and certify the control panel in accordance with the provisions of UL508A and affix his label to completed assembly.

6.0 Configuration Management and Standards

6.1 Configuration Management Requirements

Configuration management requirements for this Release are based upon the types of engineering services being procured and include the Tank Operating Contractor (TOC) standards listed in Section 6.2 *Applicable Standards* and the statements below.

The Subcontractor is responsible for performing constructability review(s) on the Subcontractor's design products. The constructability review(s) shall include a check for interferences and fit-up and consider the as-installed configuration as well as interim configurations during the installation process. In the event that the Subcontractor cannot adequately perform a constructability review due to incomplete or inadequate as-built or field walk-down information, the Subcontractor shall notify WRPS's Technical Representative to determine an acceptable alternate technical approach.

Design Analysis documentation shall include (1) through (6) below: (1) definition of the objective of the analysis; (2) definition of analysis inputs and their sources; (3) results of literature searches or other applicable background data; (4) identification of assumptions and indication of those that must be verified as the design proceeds; (5) identification of any computer calculation including computer type, computer program (e.g., name), revision identification, inputs, outputs, evidence of or reference to computer program verification and the bases (or reference thereto) supporting application of the computer program to the specific physical problem; (6) review and approval.

6.2 Applicable Standards

APPLICABLE ENGINEERING CODES AND TOC ENGINEERING STANDARDS

	Number	Title
1.	H-2-825301, Sheet 001	In Situ Sample Head Assembly & Details
2.	TFC-ENG-DESIGN-C-52	Technical Reviews
3.	TFC-ENG-FACSUP-P-17	Flammable Gas Ignition Source Control
4.	TFC-ENG-STD-13	Ignition Source Control Evaluation
5.	TFC-ENG-STD-34	Standard for Selection of Non-Metallic Materials in Contact with Tank Waste

6.	NFPA 70	National Electrical Code (NEC)
7.	RPP-SPEC-60471	Tank Farm Gas and Vapor Sampling System Procurement Specification

7.0 ESH&Q Requirements

7.1 Quality Assurance Requirements

The Subcontractor shall have a documented and implemented Quality Assurance Program. The Subcontractor's program shall be submitted for review/approval against the requirements identified on site form A-6006-661 Quality Assurance Requirements dated 7/30/2015.

7.1.1 Supplier Quality Assurance Program

The Subcontractor's Quality Assurance Program shall be subject to review at all times, including prior to award.

7.1.2 Supplier Quality Assurance Program Changes

The Subcontractor shall, during the performance of this subcontract, submit proposed changes to their approved quality assurance program to WRPS for review and concurrence prior to implementation.

7.1.3 Quality Assurance Oversight

WRPS personnel will co-ordinate with the supplier to conduct scheduled and periodic oversight of activities or products associated with this scope of work.

7.2 Price-Anderson Amendments Act Requirements

This 7.2 section and the General Provisions Article 2.11 entitled, *Price-Anderson Amendments Act (PAAA)*, are both determined to be N/A.

7.3 Special ESH&Q Requirements

Hanford Site access is not authorized for work to be completed under this SOW.

8.0 Verification/Hold Points

Testing activities shall not be performed prior to the submittal and approval of a Test Plan. WRPS reserves the right to designate any and all test steps and/or inspections as verification/hold points that shall not be performed without a WRPS representative present to witness the testing and inspection of components described in this SOW. Should such a designation result in cost and/or schedule impacts to the Subcontractor, the Subcontractor shall notify WRPS in a timely manner to allow for contractual adjustments to be negotiated and made, as appropriate.

As part of the subcontract submittal process and unless otherwise specified, WRPS will review Subcontractor prepared documents and designate all required WRPS reviews, inspections, witnesses, and notification points. If WRPS should conclude that the system fails at any point during testing, this statement of work will be stopped and development put on hold. The

Subcontractor and WRPS will evaluate either the potential for additional testing or the termination of the project.

9.0 Reserved

10.0 Work Location/Potential Access Requirements

Work shall be performed at the Subcontractor's facility.

11.0 Training

There is no training required for the performance of this scope of work.

12.0 Qualifications

Subcontractor personnel and support staff shall be qualified and trained to perform all activities associated with this subcontract. The Subcontractor personnel and all lower-tier Subcontractors shall have performed similar work and provide personnel with qualifications commensurate with their work assignments. Key engineering personnel shall have a Bachelor of Science Degree in an appropriate engineering discipline depending on the work they are responsible for. Prior to award, the Subcontractor and lower tier subcontractors shall include resumes of key project personnel for WRPS review. The identified Key Personnel shall be assigned to the project.

13.0 Special Requirements

There are no special requirements for this scope of work.

Use of Government Vehicles

There is no anticipated need for any Subcontractor employees to use a Government-furnished vehicle in the performance of this statement of work. The Subcontractor's employees, therefore, are specifically prohibited from driving any Government-furnished vehicles under the performance of this statement of work unless this statement of work is formally so modified by the parties and the employee(s) will present a valid driver's license to the Buyers Technical Representative (BTR) for review.

Government Property

Pursuant to the Subcontract General Provisions article entitled, "Management of Subcontractor-Held Government-Owned Property," the following Government-owned property will be provided to the Subcontractor. The Subcontractor shall be responsible for managing the Government-owned property as required in the Subcontract General Provisions:

- *Head Space Sample Head Assembly*

14.0 Reporting/Administration

- The Subcontractor's Project Manager shall attend regularly scheduled project status meetings as required. The status meeting may be accomplished via telecom.
- On a monthly basis, the Subcontractor shall provide a schedule update showing percentage of work performed including expenditures to date and an estimated completion date.

15.0 Workplace Substance Abuse Program Requirements

A Workplace Substance Abuse Program is not required for this SOW.

APPENDIX B: PROCUREMENT QUALITY ASSURANCE CLAUSES WORKSHEET

Procurement quality clauses may be used for the acquisition of items and services. The clauses establish contractual obligations for quality program systems, identification, traceability, documents submittals, testing, reporting, qualification, special process controls, inspections, etc. This worksheet is for Internal Use Only and will not be sent to the Subcontractor in the SOW package.

The clauses have been created as a convenient way to communicate quality requirements to the subcontractor. By checking the appropriate clause below, the Procurement Specialist will insert the appropriate contract language in the QA section of the subcontract/purchase order.

The specific language for each clause and further information can be found at <http://apweb02.rl.gov/rapidweb/phmc/procweb/docs/152/docs/Appendix.doc>

PREAWARD AND SUPPLIER FABRICATION

- | | | |
|-----|----------------------------------|--|
| B01 | <input type="radio"/> | Quality Assurance Program Submittal and Pre-award Survey |
| B04 | <input type="radio"/> | Supplier Quality Program Evaluation |
| B07 | <input type="radio"/> | Certified Quality Program |
| B10 | <input type="radio"/> | Quality System for Materials Specifying Testing Per ASME |
| B13 | <input checked="" type="radio"/> | Fabrication/Inspection/Test Plan |
| B16 | <input type="radio"/> | Source Inspection |
| B17 | <input type="radio"/> | Certified Electrical Inspector (Non-NEC IAEI) |
| B19 | <input type="radio"/> | First Article Inspection-Source |
| B22 | <input type="radio"/> | Nonconformance Documentation and Reporting |
| B25 | <input type="radio"/> | Certified Weld Inspector (CWI) |
| B28 | <input type="radio"/> | Welding Procedures and Qualifications |
| B31 | <input type="radio"/> | Nondestructive Examination Process |

MATERIAL IDENTIFICATION

- | | | |
|-----|-----------------------|---|
| B32 | <input type="radio"/> | Identification of Items with Part number/Model number |
| B33 | <input type="radio"/> | Identification of Items with Catalog Cut |
| B34 | <input type="radio"/> | Identification of Items |
| B37 | <input type="radio"/> | Identification and Traceability of Items |
| B43 | <input type="radio"/> | Identification of Age Control Items |

TESTING AND TEST DATA

- | | | |
|-----|----------------------------------|---|
| B46 | <input type="radio"/> | Liquid Penetrant Material Certification |
| B49 | <input type="radio"/> | Certified Material Test Report |
| B52 | <input checked="" type="radio"/> | Inspection and Test Report |
| B55 | <input type="radio"/> | Flame Test Report |
| B58 | <input type="radio"/> | Calibration Report |
| B61 | <input checked="" type="radio"/> | Certification of Calibration |
| B64 | <input type="radio"/> | Repair and Calibration Services |
| B65 | <input type="radio"/> | Nationally Recognized Testing Laboratory (NRTL) Listed or Labeled |

INSPECTION AND ACCEPTANCE CRITERIA

- | | | |
|-----|-------------------------------------|---|
| B67 | <input type="checkbox"/> | First Article Inspection/Test-Receiving |
| B70 | <input type="checkbox"/> | Supplier Furnished Items |
| B73 | <input type="checkbox"/> | Control of Graded Fasteners |
| B76 | <input type="checkbox"/> | Procurement of Potentially Suspect or
Counterfeit Items |
| B79 | <input checked="" type="checkbox"/> | Certificate of Conformance |
| B82 | <input type="checkbox"/> | Recommended Spare Parts Listing |
| B83 | <input type="checkbox"/> | Certificate of Conformance for Respiratory Protection Equipment |

MATERIAL HANDLING

- | | | |
|-----|--------------------------|-------------------------------|
| B85 | <input type="checkbox"/> | Packaging/Shipping Procedures |
| B88 | <input type="checkbox"/> | Direct Drop Shipment |